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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

REDDING, THOMAS M

ART UNIT

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2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,613	Applicant(s) ITO ET AL.	
	Examiner THOMAS M. REDDING	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 9-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/7/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on March 29, 2001. It is noted, however, that applicant has not filed a certified copy of the P2001-094592 application as required by 35 U.S.C. 119(b).

Specification

2. The disclosure is objected to because of the following informalities: The title appears to have a typographical error. Currently the title is: "Method of Detecting Projecting Adherend and Method for Producing Super Plug Using That Method". Elsewhere in the documentation and in the context of the application it is apparent that the word "Super" was intended to be "Spark".

Appropriate correction is required.

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use

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thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4. The abstract of the disclosure is objected to because of undue length. The abstract should be limited to a range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

5. Claims 9-14 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1- 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawada (US 6,640,002).

Regarding claim 1, Kawada discloses [a] method of detecting protrudent matters adhered on an outside of a connected work member of a plurality of metallic materials, comprising:

a photographing process for photographing the connected work member by a photographing instrument to generate a photographic image ("FIG. 3 is a plan view of a relevant portion of the image taking device, with a CCD (charge coupled device) camera thereof and a CCD-camera elevating and lowering device thereof being omitted", Kawada, column 10, line 56 and figure 3);

a confirmation process of making an outside outline of the connected work member (also called as "outline of the work to be detected" hereafter) in the photographic image correspond to a range including a non-allowable range not allowing existence of the protrudent adhered matters and confirming presence or absence of the existence of the outline of the work to be detected in the non-allowable range ("The image processing device 12 can inspect whether an object having an image 310 has a burr 316 as a sort of defect as shown in FIG. 59. In this case, the processing device 12

places, slightly outside three sides of the image 310, an individual inspect template 322 including three negative search lines 317, 318, 320 parallel to the three sides, respectively”, Kawada, column 52, line 66 and figure 59); and

a judging process of judging that the protrudent adhered matters exist on the outside of the connected work member when the existence of the outline of the work to be detected in the non-allowable range is confirmed in the confirmation process (“If it is judged whether each one search line 317, 318, 320 intersects the edge of the dark image 310, a positive judgment is made with respect to the third negative search line 320. Accordingly, the computer concludes that the object having the image 310 has the burr 316 as the defect and does not pass the inspection”, Kawada, column 53, line 9).

Regarding claim 2, Kawada discloses making, in said confirmation process, correspondence between the outline of the work to be detected and a range including the non-allowable range in said photographic image, and confirming, in the corresponding photographic image, presence or absence of the existence of the outline of the work to be detected in the non-allowable range (“If it is judged whether each one search line 317, 318, 320 intersects the edge of the dark image 310, a positive judgment is made with respect to the third negative search line 320. Accordingly, the computer concludes that the object having the image 310 has the burr 316 as the defect and does not pass the inspection”, Kawada, column 53, line 9 and figure 59).

Regarding claim 3, Kawada discloses in advance deciding the non-allowable range on the basis of the outside outline (also called as “outline of the reference work” hereafter) of a reference work material to be a reference of the connected work member (“the computer of the processing device 12 reads, from the DRAM 156, a master inspect template is pre-stored in the DRAM 156, and coordinate-transforms the master inspect template to obtain the individual inspect template 322”, Kawada, column 53, line 5, Kawada discloses that the reference is pre-stored, and “The image processing device 12 can produce a master or individual inspect template which includes both the negative search lines 312, 313, 314 shown in FIG. 58 and the negative search lines 317, 318, 320 shown in FIG. 59”, Kawada, column 53, line 38, The negative search lines may be stored in the template and are therefore positioned in advance determining the tolerance range).

Regarding claim 4, Kawada discloses previously setting, in the confirmation process, a detecting line as a boundary between the non-allowable range and an allowable range for allowing the existence of the outline of the reference work neighboring the non-allowable range on the basis of the outline of the reference work, making the correspondence between the detecting line and the outline of the work to be detected in the photographic image, and confirming whether or not the outline of the work to be detected exists on the detecting line (“To this end, the processing device 12 produces an individual seek template 398 including a number of positive search lines 394 which are expected to intersect an edge of the one pad 392 to be sought, and a

plurality of (e.g. four) negative search lines 396 which are expected not to intersect the edge of the one pad 392”, Kawada, column 55, line 12).

Regarding claim 5, Kawada discloses in the confirmation process, making correspondence between the outline of the work to be detected and the detecting line in the photographic image, and confirming, in the photographic image, whether or not the outline of the work to be detected exists on the detecting line (“The processing device 12 judges whether each of the positive search lines 394 intersects any one of the respective edges of all the pads 392, and judges whether each of the negative search lines 396 does not intersect any ones of the respective edges of all the pads 392. If each of the positive search lines 394 intersects any one of the respective edges of all the pads 392, and simultaneously if each of the negative search lines 396 does not intersect any ones of the respective edges of all the pads 392, the processing device 12 concludes that the pad 392 whose edge is intersected by the positive search lines 394 is the pad 392 being sought”, Kawada, column 55, line 16).

Regarding claim 6, Kawada discloses setting a reference point to be a positioning reference of the detecting line corresponding to the outline of the work to be detected in a prescribed position on the outline of the work to be detected, and positioning the detecting line to the outline of the work to be detected on the basis of the reference point (“the seek template comprising a plurality of pairs of points, the two points of each pair out of the pairs being distant from each other; object judging means

for making, when the seek template represented by the seek-template data is superposed on a screen on which the image represented by the image data is present and respective optical characteristic values corresponding to the two points of the each pair satisfy a predetermined condition relating to an amount of difference between respective optical characteristic values inside and outside the edge of the image”, Kawada, column 8, line 3, and figure 18).

Regarding claim 7, Kawada discloses determining reference points per members in the plurality of metallic materials connected as elements of the connected work members, and positioning the detecting line per each of the metallic materials on the basis of the reference points per members (“The processing device 12 judges whether each of the positive search lines 394 intersects any one of the respective edges of all the pads 392, and judges whether each of the negative search lines 396 does not intersect any ones of the respective edges of all the pads 392. If each of the positive search lines 394 intersects any one of the respective edges of all the pads 392, and simultaneously if each of the negative search lines 396 does not intersect any ones of the respective edges of all the pads 392, the processing device 12 concludes that the pad 392 whose edge is intersected by the positive search lines 394 is the pad 392 being sought”, Kawada, column 55, line 16, Kawada is, in this example, establishing the position of a set of solder pads and setting negative search lines accordingly).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada (US 6,640,002).

Regarding claim 8, Kawada discloses all the elements in common with claim 7 as described above. Kawada does not explicitly disclose said plurality of metallic materials include two metallic members of different diameters, and in regard to at least one of these two metallic materials, a position of changing the diameter in the outline of the work to be detected is determined as a reference point per member.

However, Kawada does teach inspecting objects of different diameters (Figures 22, 23 and 65, Kawada can accommodate targets with varying diameters). Kawada also teaches determining reference points within inspection targets ("If each of the positive search lines 394 intersects any one of the respective edges of all the pads 392, and simultaneously if each of the negative search lines 396 does not intersect any ones of the respective edges of all the pads 392, the processing device 12 concludes that the pad 392 whose edge is intersected by the positive search lines 394 is the pad 392 being

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sought”, Kawada, column 55, line 21, Kawada is, in this example, establishing the position of a set of solder pads).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the positive and negative search line techniques of Kawada to inspect elements of different diameters since Kawada’s method “can quickly seek, using a seek template, an object and quickly measure, using a measure template, a position, a rotation angle, and/or one or more dimensions of the object, even if the position and/or rotation angle of the object may be greatly deviated from its expected position and rotation angle”, Kawada, column 2, line 56).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Baldwin (1993) teaches the use of tolerance bands in evaluating an image.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS M. REDDING whose telephone number is (571)270-1579. The examiner can normally be reached on Mon - Fri 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. M. R./
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624